

Remarks

The Office Action dated June 17, 2003 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-4 and 6-21 are pending in this application. Claims 1-4 and 6-21 stand rejected.

In accordance with 37 C.F.R. 1.136(a), a one month extension of time is submitted herewith to extend the due date of the response to the Office Action dated June 17, 2003, for the above-identified patent application from September 17, 2003, through and including October 17, 2003. In accordance with 37 C.F.R. 1.17(a), authorization to charge a deposit account in the amount of \$110.00 to cover this extension of time request also is submitted herewith.

The rejection of Claims 1-4 and 6-21 under 35 U.S.C. § 112, first paragraph, is respectfully traversed.

The Office Action suggests at page 2, that "Applicant claims a containment design rating of 50-150 atmospheres. The disclosure is insufficient in failing to set forth the specific conditions under which such pressure rating would be required". Applicant disagrees with this suggestion and respectfully submits that the specification clearly sets forth the conditions that require a containment vessel pressure rating of at least 50 atmospheres. Particularly, paragraph 0004 explains that known containment vessels have a large volume that provides an expansion area for depressurization of any steam release from the RPV. Also, that these known containment vessels are configured to contain about 2 to about 3 atmospheres. Paragraph 0009 describes that a compact metal containment vessel in accordance with an exemplary embodiment of the present invention is smaller than known containment vessels. Paragraph 0015 describes that the containment vessel is relatively closely spaced from the RPV with the cavity between the

RPV and the containment vessel having a volume slightly larger than the volume of the RPV.

"The volume of cavity 26 in excess of the volume of RPV 12 is the volume available for expansion of high pressure gases, for example steam, venting from RPV 12 during a LOCA.

The ability of containment 14 to contain high pressure fluids, up to 150 atm, permits the size of containment vessel 14 to be less than known containment enclosures. . . . The volume of cavity 26 is less than or equal to four times the volume of RPV 12."

In regard to safety systems, paragraph 0010 of the present application describes that "The boiling water reactor with compact, dry containment vessel also employs a simple safety system which isolates and retains coolant inventory following a loss-of coolant accident (LOCA). The safety system is capable of maintaining core cooling and decay heat transfer using isolation condensers and equalizing lines without requiring coolant make-up from external sources."

Further paragraph 0019 describes, with reference to Figure 2, that:

[A] containment cooling system (CCS) 44 is coupled to containment vessel 14. CCS 44 includes a cooling condenser pool of water 46, isolation condensers 48, an inlet line 50, and a condensate drain line 52. Cooling condenser pool of water 46 is located outside containment vessel 14. Isolation condensers 48 are submerged in cooling pool 46. Inlet line 50 extends from containment vessel 14 to isolation condensers 48 and provides fluid communication between condensers 48 and drywell 28. In the event of a LOCA, steam flows from drywell 28 through inlet line 50 to upper drums 54 of condensers 48 and into a condensing section 56 of each condenser 48 where steam is cooled condensed and collected in lower drums 58. Condensate drain line 52 extends from lower drums 58 of condensers 48 to valves 60. A vent line 62 extends from lower drums 58 to a radiation waste tank (not shown). An injection line 64 extends from valves 60 to drywell 28 and condensate drains to drywell 28 through condensate drain line 52, valves 60, and injection line 64.

For the reasons set forth above, Applicant submits that Claims 1-4 and 6-21 contain subject matter that is described in the specification in such a way as to enable one skilled in the

art to make and/or use the invention. Accordingly, Applicant submits that Claims 1-4 and 6-21 meet the requirements of Section 112, first paragraph.

For the reasons set forth above, Applicant respectfully requests that the Section 112 rejection of Claims 1-4 and 6-21 be withdrawn.

The rejection of Claims 1-4 and 6-10 under 35 U.S.C. § 112, second paragraph, is respectfully traversed.

Claim 1 has been amended to more clearly show that the claim recites a containment vessel. Particularly, Claim 1 has been amended to recite ". . . a drywell located inside said containment cavity; and a remotely actuated valve in flow communication with said drywell, said valve configured to connect to the pressure vessel." Accordingly, Applicant submits that Claims 1-4 and 6-10 are definite and particularly point out and distinctly claim the subject matter which Applicant regards as his invention.

For the reasons set forth above, Applicant respectfully requests that the Section 112 rejection of Claims 1-4 and 6-10 be withdrawn.

The rejection of Claims 1-4, 6-9, and 11-20 under 35 U.S.C. § 103(a) as being unpatentable over Nakamaru et al. (US 2002/0085660) in view of Chalfant, Jr. (US 4,465,201) is respectfully traversed.

Nakamaru et al. describe a boiling water reactor nuclear power plant that includes a pressure containment vessel 401 that has a dual-cylinder structure of an inner wall 401a and an outer wall 401b. The inner wall 401a forms a dry well 231 about the outer circumference of the pressure vessel 201. The outer wall 401b forms a suppression pool 404 on the outer side of the inner wall 401a. The walls are made by a plurality of steel plates and the spaces between the

opposing plates being able to convey water or air. Nakamaru et al. do not describe nor suggest that the containment vessel has a pressure rating of at least about 50 atmospheres.

Chalfant, Jr. describes a shipping container apparatus for radioactive and other hazardous materials that includes a body opened at the top, a conical O-ring seal and a closure member for sealing the container. Chalfant, Jr. does not describe nor suggest a nuclear reactor containment vessel that includes a drywell located inside the containment cavity and a remotely actuated valve in flow communication with the drywell, where the valve is configured to connect to the reactor pressure vessel.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestions or motivation supporting the combination. In addition, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

Applicant submits that in this case, there is no motivation to modify the teachings of Nakamaru et al. with the teachings of Chalfant, Jr. Particularly, there is no indication that the containment vessel of Nakamaru et al. requires the pressure rating of 1000 psig of the shipping

container of Chalfant, Jr. As explained in the present application, known containment vessels are typically of sufficient volume to depressurize any steam release from the reactor pressure vessel so that the pressure rating of the containment vessel is about 3 atmospheres. Applicant submits that Nakamaru et al. teaches that the containment vessel includes a wetwell with a suppression pool. Applicant submit that one skilled in the art would understand that there is a large enough volume in the containment vessel to depressurize any steam release well below the 1000 psig pressure rating taught by Chalfant, Jr. Accordingly, Applicants submit that there is no motivation to modify the containment vessel of Nakamaru et al. with the pressure rating of Chalfant, Jr. because there is no need to do so. It appears that the only motivation to modify the teachings of Nakamaru et al. with the teachings of Chalfant, Jr. impermissibly comes from Applicant's application. Therefore, it would not have been obvious to one skilled in the art to modify the teachings of Nakamaru et al. with the teachings of Chalfant, Jr.

Further, Nakamaru et al. and Chalfant, Jr. do not describe nor suggest a containment vessel as recited in Claim 1 nor a nuclear reactor as recited in Claim 11. Particularly, Nakamaru et al. do not describe nor suggest that the containment vessel has a pressure rating of at least about 50 atmospheres, and Chalfant, Jr. does not describe nor suggest a nuclear reactor containment vessel that includes a drywell located inside the containment cavity and a remotely actuated valve in flow communication with the drywell, where the valve is configured to connect to the reactor pressure vessel. Also, Chalfant, Jr. does not describe nor suggest a nuclear reactor. Accordingly, Applicant submits that independent Claims 1 and 11 are patentable over Nakamaru et al. and Chalfant, Jr.

Claims 2-4 and 6-9 depend from independent Claim 1 and Claims 12-20 depend from independent Claim 11. When the recitations of dependent Claims 2-4 and 6-9 Claims 12-20 are considered in combination with the recitations of Claims 1 and 11 respectively, Applicant respectfully submits that Claims 2-4, 6-9, and 12-20 likewise are patentable over Nakamaru et al. and Chalfant, Jr.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claims 1-4, 6-9, and 11-20 be withdrawn.

The rejection of Claims 10 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Nakamaru et al. (US 2002/0085660) in view of Chalfant, Jr. (US 4,465,201) and further in view of Kobayashi (US 4,576,784) is respectfully traversed.

At least for the reasons explained above, independent Claims 1 and 11 are patentable over Nakamaru et al. and Chalfant, Jr.

Kobayashi describes a nuclear reactor pressure vessel that has a thickness of about 30 cm. Kobayashi does not describe nor suggest a containment vessel that encloses the reactor pressure vessel inside. Kobayashi does not describe nor suggest a containment vessel having a pressure rating of at least about 50 atmospheres. Particularly, Kobayashi does not describe nor suggest any containment vessel.

Further, Nakamaru et al., Chalfant, Jr., and Kobayashi do not describe nor suggest a containment vessel as recited in Claim 1 nor a nuclear reactor as recited in Claim 11.

Particularly, Nakamaru et al. do not describe nor suggest that the containment vessel has a pressure rating of at least about 50 atmospheres, and Chalfant, Jr. does not describe nor suggest a nuclear reactor containment vessel that includes a drywell located inside the containment cavity

and a remotely actuated valve in flow communication with the drywell, where the valve is configured to connect to the reactor pressure vessel. Also, Chalfant, Jr. does not describe nor suggest a nuclear reactor. Further, Kobayashi does not describe nor suggest a containment vessel having a pressure rating of at least about 50 atmospheres. Accordingly, Applicant submits that independent Claims 1 and 11 are patentable over Nakamaru et al., Chalfant, Jr. and Kobayashi.

Claim 10 depends from independent Claim 1 and Claim 21 depends from independent Claim 11. When the recitations of dependent Claims 10 and 21 are considered in combination with the recitations of Claims 1 and 11 respectively, Applicant respectfully submits that Claims 10 and 21 likewise are patentable over Nakamaru et al., Chalfant, Jr., and Kobayashi, alone or in combination.

For the reasons set forth above, Applicant respectfully requests that the Section 103(a) rejection of Claims 10 and 21 be withdrawn.

The rejection of Claims 10 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Nakamaru et al. (US 2002/0085660) in view of Chalfant, Jr. (US 4,465,201) is respectfully traversed.

At least for the reasons explained above, independent Claims 1 and 11 are patentable over Nakamaru et al. and Chalfant, Jr.

Claim 10 depends from independent Claim 1 and Claim 21 depends from independent Claim 11. When the recitations of dependent Claims 10 and 21 are considered in combination with the recitations of Claims 1 and 11 respectively, Applicant respectfully submits that Claims 10 and 21 likewise are patentable over Nakamaru et al. and Chalfant, Jr.

For the reasons set forth above, Applicant respectfully requests that the Section 103(a) rejection of Claims 10 and 21 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,

A handwritten signature in cursive script, reading "Michael Tersillo", written in black ink.

Michael Tersillo
Registration No. 42,180
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070